IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

4. (Amended) In an oil well having a casing with tubing concentrically disposed therein, an apparatus for controlling gas lift, said apparatus comprising a gas lift valve mounted on said tubing and having an inlet end in communication with a space between said tubing and said casing and an outlet in communication with an interior of said tubing, said gas lift valve consisting of a housing and a nozzle mounted in said housing, said nozzle having a continuously open passage through which gas is allowed to flow, wherein said passage consists of a curved inlet portion through which gas flow is speeded up, a smooth straight, intermediate portion providing a main restriction to gas flow and a smooth, outwardly tapered, conical shaped outlet portion through which said gas flow is gradually slowed down, reducing the gas pressure loss and rendering gas flow isoentropic.

Kindly add the following new claims:

--5. (New) In oil well having a casing and a tubing with an annulus defined therebetween, an apparatus for controlling the flow of gas from said annulus into said tubing, said apparatus comprising:

a gas lift valve mounted on said tubing and having an inlet end in communication with said annulus for admitting gas from said annulus into said gas lift valve, and an outlet end in communication with an interior of said tubing, for discharging gas into said tubing;

said gas lift valve including a housing and a nozzle mounted in said housing, said nozzle being provided with a continuously open passage through which gas is allowed to flow, said passage comprising:

a convergent inlet portion through which gas flow is gradually accelerated, and

a divergent outlet portion through which said gas flow s gradually slowed down, thereby reducing the gas pressure loss and rendering the gas flow isoentropic.

6. (New) An oil well as in claim 5, further comprising:

a smooth straight intermediate portion located between said curved inlet portion and said tapered outlet portion, said intermediate portion providing a main restriction to said flow.

7. (New) In a gas lift system for injecting pressurized gas into a well having a production string, a gas flow control valve comprising:

a housing including at least one inlet port and at least one outlet port;

an orifice comprising a nozzle portion and a diffuser portion;

said nozzle portion including a nozzle first end, a nozzle second end, and a nozzle flow path between said nozzle first end and said nozzle second end; said nozzle flow path converging from said nozzle first end to said nozzle second end, such that the gas experiences a decrease in pressure;

said diffuser portion including a first end and a second end, and a diffuser flow path therebetween,

said diffuser flow path diverging from said diffuser first end to said diffuser second end, such that the gas experiences a rise in pressure, said diffuser first end being disposed adjacent said nozzle second end, such that a throat is defined therebetween, said diffuser flow path being aligned with said nozzle flow path to provide a continuous flow path;

whereby said pressurized gas flows into said at least one inlet port of said gas flow control valve through said continuous flow path, and out through said at least one outlet port into said production string.

8. (New) A gas lift system as in claim 7, further comprising a check valve downstream from said diffuser portion responsive to said flow of pressurized gas.

9. (New) The device of claim 7 wherein said diffuser has a conical contour.

10. (New) A device for controlling a flow of gas from an external source into well tubing to enhance lift of fluid in the tubing comprising:

a gas lift valve insertable in the tubing, said valve having a housing with an upper portion having at least one inlet port for admitting the gas from the external source into the valve, a lower portion having at least one outlet port for discharging the gas from the valve into the tubing and a mid-portion extending therebetween on a longitudinal axis, and an orifice mounted within said housing mid-portion, said orifice having a throat transverse to and symmetrical about said longitudinal axis, a nozzle extending upwardly from said throat and diverging symmetrically outwardly from said axis and a diffuser extending downwardly from said throat and diverging symmetrically outwardly from said axis, said orifice defining a path of flow of gas from said upper portion to said lower portion of said housing;

said nozzle including a nozzle first end, a nozzle second end, and a nozzle flow path between said nozzle first end and said nozzle second end, said nozzle flow path converging from said nozzle first end to said nozzle second end, such that the gas experiences a decrease in pressure;

said diffuser including a first end and a second end, and a diffuser flow path therebetween, said diffuser flow path diverging from said diffuser first end to said diffuser second end, such that the gas experiences a rise in pressure, said diffuser first end being disposed adjacent said nozzle second end, such that flow is achieved in said throat, said diffuser flow path being aligned with said nozzle flow path to provide a continuous flow path;

whereby said gas flows into said at least one inlet port of said housing through said continuous flow path, and out through said at least one outlet port into said tubing.

11. (New) A device as in claim 10, further comprising a check valve disposed downstream from said diffuser portion and responsive to said flow of gas.

12. (New) The device of claim 10, wherein said diffuser has a conical contour.